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CADRE Quick-Look

Catalyst for Air & Space Power Research Dialogue

Current Operations: Changing Equipment to Meet a Changing Threat

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Problem: In general, current USAF aircraft and weapons were designed for major combat against a major military force and a coherent government. These systems performed brilliantly against conventional military forces in Afghanistan and Iraq and helped rapidly dismantle the Taliban regime and Saddam Hussein's government. However, having defeated the enemy conventional forces and dismantled coherent national governments, U.S. forces now face a variety of insurgents, terrorists, and criminals that our aircraft and weapons were not designed to defeat. Could different equipment help us do the job better?

Discussion: The enemy air threat has been reduced to MANPADS and small arms. This means that aircraft can operate at slower speeds, lower altitudes, and for a longer time than they could against robust IADs. The enemy is now operating in small, dispersed, hard-to-find elements that tax our ISR assets. The enemy is also trying to prolong the conflict rather than engage in decisive combat and prefers to operate in populated areas where our current weapons may cause excessive collateral damage.

Possible Solutions:

1) Against guerrillas and terrorists who are trying very hard to hide, ISR is in very high demand. Unfortunately ISR assets are already high-demand/low-density assets. One way to help fill the gap would be to enhance the ISR capabilities of current strike platforms by centralizing ISR planning and prioritization at the JFC level rather than allowing diverse JTF and tactical units flood CAOC planners with ISR support requests.

2) Another way to fill this ISR gap is to increase the number of ISR platforms by adding a large number of inexpensive platforms (OV-10s, O-2s, T-6s, T/A-37s, and/or comparable foreign aircraft) that, with FLIR and other systems, would add to our ISR capability at a reasonable cost and reasonable risk in the current limited-threat environment. These platforms could come from contractors or allies and we should build toward indigenous air forces with these capabilities. This could be a way to increase international participation in stability and reconstruction efforts in Iraq and Afghanistan—especially since such capabilities are core competencies for some potential coalition members.

3) Guerrillas and terrorists hide among the population to make it hard for us to use our current precision weapons (guided bombs no smaller that 500 lbs, Maverick missiles with 300# warheads, etc.) because these weapons pose a substantial risk of collateral damage. Our smaller yield weapons (e.g. rockets and cluster bombs) tend to be inaccurate and the enemy avoids these by operating if very small units. We need to develop and field lower-yield precision weapons to address this threat. Strafing is the obvious way to bridge the gap in the short run but the guns could be made more effective by allowing the pilot to pre-set the number of rounds he wishes to fire (and thus manage potential collateral damage) electronically rather than trying to manage it through his trigger-pull. An air-burst or proximity fuse would also enhance the effectiveness of our guns against un-armored enemy personnel.

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4) Another quick-fix is to mount smaller Hellfire missiles in place of the large mavericks we currently use. This may require some testing but we are already using Hellfire on Predators so they are readily available and we are gaining more experience with them every day.

5) The long-term solution is to develop new systems that combine the precision of our high-yield systems with lower yield weapons. Some options to consider are:

a. Hand grenade/cluster bomb-sized precision weapons. These could be guided by any number of different methods (laser, GPS, optical, IR, radar, etc.). Size and cost of the guidance system would be critical considerations. It may prove more efficient to simply add a "dial-a-yield" capability to an existing system, for example by segmenting a Hellfire warhead and adding separate fusses for each segment so that the pilot could limit the size of the blast by limiting the number of fuses he activated.

b. Inert, disintegrating projectiles. Current inert bombs have enormous structural integrity. When they hit the ground they tend to broach and skip long distances potentially producing damage further away from the target than a live bomb. What we need is a weapon that is safe and stable in flight, precisely guided, and hits with substantial kinetic energy, but disintegrates when it hits the target—in essence, the ability to achieve a very low CEP with something like a 50 lb sandbag at terminal velocity that would disintegrate on impact leaving no lethal effects beyond the immediate target.

c. Non-lethal systems that "zot" vehicles, sticky slime or slippery stuff that prevent people from leaving an area until ground elements arrive and apprehend. Air-mounting the Active Denial System being developed for air base defense and using it to push people in a desired direction without injuring them.